ABSTRACT

Charles University in Prague
Faculty of Pharmacy in Hradec Králové
Department of Pharmaceutical Technology

Candidate: Katarína Vojtková
Supervisor: Doc.RNDr. Milan Dittrich, CSc.
Title of diploma thesis: Influence of reduction agent on granulometric parameters of silver nanoparticles

The aim of this work is to test the influence of different technological parameters on the production of silver nanoparticles. The method used along the experiments was the Tollens reduction method. As reduction agents, there were used various monosaccharides, mainly glucose, oligosaccharides, maltose, lactose and branched polysaccharide Litesse® Ultra in different concentrations. There were used mixtures of two reducing agents as well as addition of surfactants. The concentration of silver reducing ions was increased also. The work contains comparison of the effects of different concentrations of the reducing agents used and also comparison of any changes of the conditions used for the preparation samples (e.g. freezing). Both phases of nucleation and growth were modified either by microwave radiation or ultrasound irradiation. In case of the later the samples showed very small nanoparticles with an average intensity diameter of 20 nm. The outcoming results are presented in tables and pictures. The resulting products can be applied as antimicrobial agents in cosmetic products or in textil materials.